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(71) Applicant (for all designated States except US): FISHER & PAYKEL HEALTHCARE LIMITED [NZ/NZ]; P.O. Box 14348, Panmure, Auckland, 15 Maurice Paykel Place, East Tamaki, Auckland 1006 (NZ).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(72) Inventors; and

(75) Inventors/Applicants (for US only): BREMNER, Michael, Brian, Edward [NZ/NZ]; C/-P.O. Box 14348, Panmure 12 Tansley Avenue, Mt Roskill, 1003 Auckland (NZ). HUDDART, Brett, John [NZ/NZ]; C/-P.O. Box 14348, Panmure 89 Peary Road, Mt Eden, 1003 Auckland (NZ). MACKIE, Scott, Robert [NZ/NZ]; c/- P. O. Box 14348, Panmure, 23B Kingsland Avenue, Kingsland, 1002 Auckland (NZ).

WO 2004/039444 A1

(54) Title: SYSTEM FOR SENSING THE DELIVERY OF GASES TO A PATIENT

(57) Abstract: The present invention provides improvements in the feedback and control systems employed in the field of ventilation therapy. In particular, a system for delivering a supply of gases to a patient is described which incorporates a detachable cartridge or open tubular section (22) used to house a mechanism (11) which senses the humidity, temperature, flow and other attributes of the flowing gas. Information obtained from the sensor may be used to provide feedback to a controller (9) which controls the humidification mechanism in order to provide optimally humidified gases to a patient (1). It will be appreciated that the feedback and control system as described in the preferred embodiment of the present invention can be used in respiratory care generally or with a ventilator.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2003/000244

A. CLASSIFICATION OF SUBJECT MATTER																						
Int. Cl. ⁷ : A61M 16/16																						
According to International Patent Classification (IPC) or to both national classification and IPC																						
B. FIELDS SEARCHED																						
Minimum documentation searched (classification system followed by classification symbols) SEE ELECTRONIC DATABASES CONSULTED																						
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																						
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) DWPI: lim, humid, water, vapor, vapour, sens, transduc, probe, detect, feedback, control, remov, decouple, detach, releas, disengag, A61M 16/ - A62B																						
C. DOCUMENTS CONSIDERED TO BE RELEVANT																						
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																				
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X	JP 09-234247 (NIKKISO Y S I KK) 9 September 1997 Abstract, Fig. 1.	1-25																				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C		<input checked="" type="checkbox"/> See patent family annex																				
<p>* Special categories of cited documents:</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">"A"</td> <td style="width: 30%; padding: 2px;">document defining the general state of the art which is not considered to be of particular relevance</td> <td style="width: 40%; padding: 2px;">"T"</td> <td style="width: 40%; padding: 2px;">later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td style="padding: 2px;">"E"</td> <td style="padding: 2px;">earlier application or patent but published on or after the international filing date</td> <td style="padding: 2px;">"X"</td> <td style="padding: 2px;">document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td style="padding: 2px;">"L"</td> <td style="padding: 2px;">document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td style="padding: 2px;">"Y"</td> <td style="padding: 2px;">document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td style="padding: 2px;">"O"</td> <td style="padding: 2px;">document referring to an oral disclosure, use, exhibition or other means</td> <td style="padding: 2px;">"&"</td> <td style="padding: 2px;">document member of the same patent family</td> </tr> <tr> <td style="padding: 2px;">"P"</td> <td style="padding: 2px;">document published prior to the international filing date but later than the priority date claimed</td> <td colspan="2"></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent but published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
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Date of the actual completion of the international search 17 February 2004	Date of mailing of the international search report 23 FEB 2004																					
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	<p>Authorized officer</p>  <p>MATTHEW FORWARD</p> <p>Telephone No : (02) 6283 2606</p>																					

INTERNATIONAL SEARCH REPORT

International application No.

PCT/NZ2003/000244

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2297914 A (SMITHS INDUSTRIES PUBLIC LIMITED COMPANY) 21 August 1996 Abstract, Fig. 1, page 1 line 13 -page 3 line 17	1-25
X	AU 14863/95 A (FISHER & PAYKEL LIMITED) 21 September 1995 Abstract, Fig. 1-3B, page 1 line 19 - page 4 line 27.	1-25
P,X	EP 1329240 A1 ((FISHER & PAYKEL LIMITED) 23 July 2003 Abstract, Fig 1-6, page 2 line 46 - page 15 line 24.	1-25
P,X	WO 2003/018096 A1 (MAP MEDIZIN-TECHNOLOGIE GMBH) 6 March 2003 Abstract, Fig. 1,2, page 1 line 3 - page 12 line 21.	1-25
X	US 2002/0100320 A1 (SMITH) 1 August 2002 Abstract, Fig.1-6, page 1 paragraph [0006] - page 4 paragraph [0064].	1-25

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/NZ2003/000244

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member				
US	6102037	DE	19808590A1					
US	6050260A	AU	723650B2	AU	4678897A	CA	2222830A1	
		DE	69726245D	EP	0845277	JP	10179746A	
		EP	0845277					
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GB	2297914A	AU	702011B2	AU	4201296A	DE	19602077A1	
		FR	2730640A1	GB	2297914A	GB	9503012D	
		JP	8257126A	US	5769071A			
AU	A14863/95	DE	19508803A1	FR	2717395A1	JP	8038603A	
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			NUMEROS FAMILY		MEMBERS	TOO	MANY TO INCLUDE	
WO	03/018096A1	DE	10139881A1					

END OF ANNEX

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(72) Inventors; and

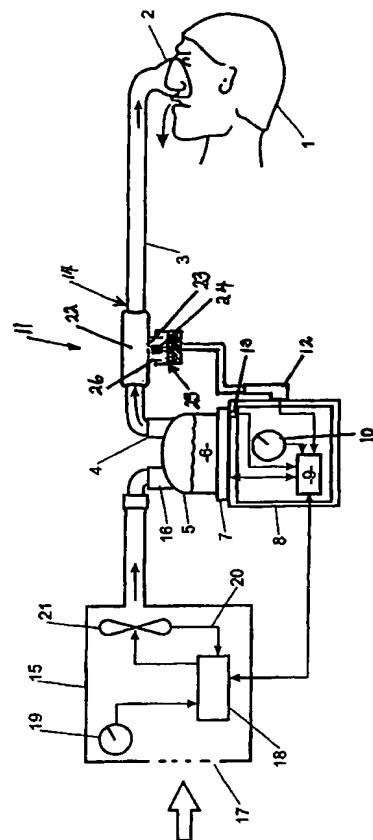
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(84) **Designated States (regional):** ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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Int. Cl. ⁷: A61M 16/16

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE ELECTRONIC DATABASES CONSULTED

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 DWPI: lim, humid, water, vapor, vapour, sens, transduc, probe, detect, feedback, control, remov, decouple, detach, releas, disengag, A61M 16/ - A62B

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Date of the actual completion of the international search
17 February 2004Date of mailing of the international search report
23 FEB 2004Name and mailing address of the ISA/AU
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